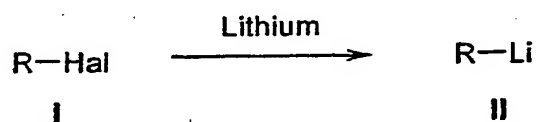


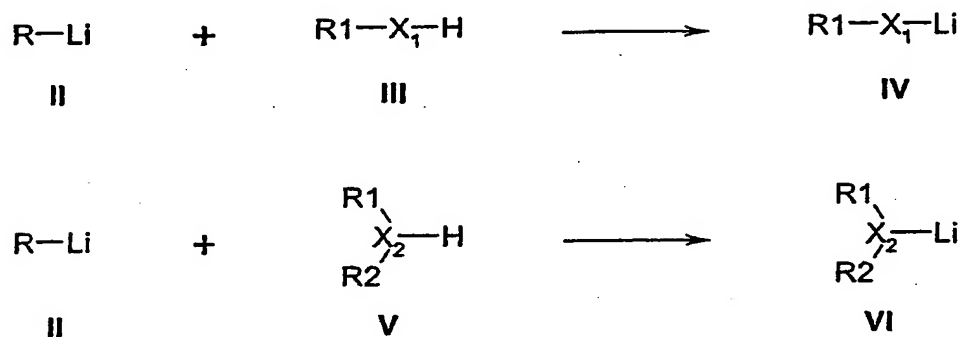
Claims:

1. A process for forming heteroatom-carbon bonds, in which aliphatic or aromatic halogen compounds (I) are firstly reacted with lithium metal to generate a lithium compound (II), this is then used for deprotonating the compounds (III) or (V), and the resulting lithium salts of the formula (IV) or (VI) are finally reacted with suitable carbon electrophiles to form the heteroatom-carbon bond and produce the product (VIII) or (VIII) (equation I).

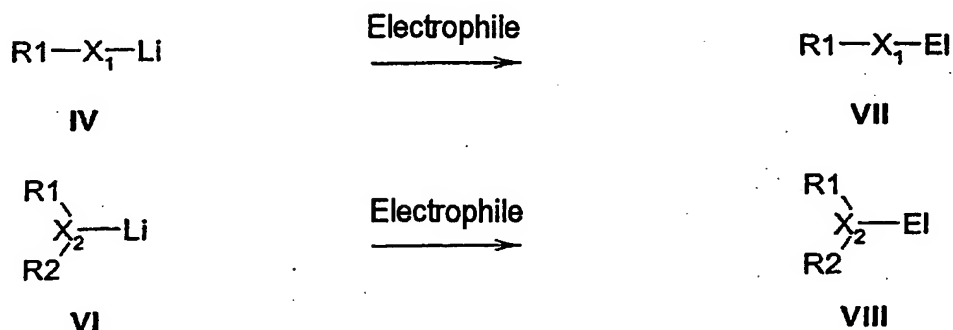
Step 1: Generation of the base



Step 2: Deprotonation of the substrate



Step 3: Reaction with an electrophile



5

(EQUATION I)

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where, R is methyl, a primary, secondary or tertiary branched or unbranched alkyl radical having from 1 to 20 carbon atoms, a phenyl, aryl or heteroaryl radical, alkyl substituted by a radical selected from the group consisting of {methyl, primary, secondary or tertiary alkyl, phenyl, substituted phenyl, aryl, heteroaryl, alkoxy, dialkylamino, alkylthio}, substituted or unsubstituted cycloalkyl having from 3 to 8 carbon atoms;

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Hal = fluorine, chlorine, bromine or iodine,

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X₁ is an oxygen or sulfur bound via a single bond to R₁ or an sp²-hybridized nitrogen bound via a double bond to R₁, and X₂ is an sp³-hybridized nitrogen;

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the radicals R₁ and R₂ are independently of one another substituents selected from the group consisting of {hydrogen, methyl, primary, secondary or tertiary, cyclic or acyclic alkyl, alkenyl or alkynyl radicals having from 1 to 20 carbon atoms, substituted cyclic or acyclic alkyl groups, acyl groups, alkoxy, aryloxy, dialkylamino, alkylamino, arylamino, diarylamino, alkylaryl amino, imino, sulfone, sulfonyl, phenyl, substituted phenyl, alkylthio, diarylphosphino, dialkylphosphino, alkylarylphosphino, dialkylaminocarbonyl or diarylaminocarbonyl, monoalkylaminocarbonyl or monoarylaminocarbonyl, alkylarylaminocarbonyl, alkoxyalkyl, carboxylate, alkylcarboxylate, CN or CHO,

30

heteroaryl), where two adjacent radicals R₁ and R₂ can together correspond to an aromatic or aliphatic ring.

- 5 2. The process as claimed in claim 1, wherein the compounds of the formula (III) which are reacted are preferably alcohols, thiols, phenols, thiophenols, oximes, hydrazones, and the compounds of the formula (V) which are reacted are preferably amines, carboxamides, sulfonamides and hydrazines.
- 10 3. The process as claimed in claim 1 or 2, wherein the electrophile used is a compound selected from the following group: aryl or alkyl cyanates, isocyanates, oxirane, substituted oxiranes, aziridines, substituted aciridines, imines, aldehydes, ketones, organic halogen compounds, triflates, other sulfonates, sulfates, ketenes, carboxylic acid chlorides, carboxylic esters, thioesters and amides, carbonic esters and phosgene derivatives.
- 15 4. The process as claimed in at least one of the preceding claims, wherein the reaction is carried out in an organic ether solvent.
- 20 5. The process as claimed in at least one of the preceding claims, wherein the reaction temperature is in the range from -100 to +70°C.
- 25 6. The process as claimed in at least one of the preceding claims, wherein the concentrations of the aliphatic or aromatic intermediates of the formula (II) are in the range from 5 to 30% by weight.
- 30 7. The process as claimed in at least one of the preceding claims, wherein the amount of lithium added per mole of halogen reacted is from 1.95 to 2.5 mol.
8. The process as claimed in at least one of the preceding claims, wherein organic redox systems are added to the reaction mixture.